

Appl. No. 10/782,545  
Amdt. Dated July 26, 2005

Attorney Docket No.: NSL-025  
Reply to Office Action of May 25, 2005

### COMPLETE LISTING OF ALL CLAIMS

Kindly cancel claim 1, amend claims 2, 22 and 25-33 and add new claim 34 as shown in the listing of claims below. This listing of claims will replace all prior versions, and listings of claims in the application.

1. 1. (cancel)
1. 2. (currently amended) The method of claim 1 A method for treating a substrate surface, comprising the steps of:  
coiling one or more substrates into one or more coils in such a way that adjacent turns of the coils do not touch one another;  
placing the one or more coiled substrates in a treatment chamber; and  
in the treatment chamber, treating substantially an entire surface of the one or more coiled substrates with a surface treatment process, wherein the surface treatment process includes  
one or more atomic layer deposition (ALD) reactions.
1. 3. (original) The method of claim 2 wherein the one or more ALD reactions include exposing the surface of the coiled substrate to a reactant vapor of the type  $MCl_x$ , where M is a metal and x is an integer from one to four.
1. 4. (original) The method of claim 3, wherein the one or more ALD reactions include exposing the surface of the coiled substrate to water vapor.
1. 5. The method of claim 3 wherein  $MCl_x$  is  $TiCl_4$ .
1. 6. (withdrawn) The method of claim 1 wherein the surface treatment process includes anodization.
1. 7. (withdrawn) The method of claim 1 wherein the surface treatment process includes drying.
1. 8. (withdrawn) The method of claim 1 wherein the surface treatment process includes annealing.
1. 9. (withdrawn) The method of claim 1 wherein the surface treatment process includes exposure to reactive gas or vapor.
1. 10. (withdrawn) The method of claim 9 wherein the exposure to reactive gas or vapor includes selenization.
1. 11. (withdrawn) The method of claim 1 where the surface treatment includes anodization.

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- 1 12. (withdrawn) The method of claim 1 where the surface treatment includes electrodeposition.
- 1 13. (withdrawn) The method of claim 1 where the surface treatment includes electropolishing.
- 1 14. (currently amended) The method of claim [[1]] 2 wherein coiling the substrate includes  
2 attaching an end of a roll of substrate material to a carousel, rotating the carousel while  
3 unrolling the substrate material from the roll to coil the substrate around the carousel, and  
4 placing one or more spacers between adjacent layers of the coiled substrate before the  
5 carousel completes a turn.
- 1 15. (original) The method of claim 14 wherein each spacer touches a back surface of the  
2 substrate but not a front surface of the substrate.
- 1 16. (original) The method of claim 14 wherein placing one or more spacers includes stacking one  
2 or more spacers on top of one another.
- 1 17. (currently amended) The method of claim [[1]] 2 wherein coiling the substrate includes  
2 attaching an end of a roll of substrate material to a carousel, moving the roll of substrate  
3 material around the carousel while unrolling the substrate material from the roll to coil the  
4 substrate around the carousel, and placing spacers between adjacent layers of the coiled  
5 substrate before the roll completes a turn about the carousel.
- 1 18. (currently amended) The method of claim [[1]] 2 wherein the one or more substrates include  
2 two or more substrates coiled side-by-side on a carousel.
- 1 19. (currently amended) The method of claim [[1]] 2 wherein coiling one or more substrates into  
2 one or more coils in such a way that adjacent turns of the coils do not touch one another  
3 includes placing a spacer tape between adjacent turns of the substrate.
- 1 20. (original) The method of claim 19 wherein the spacer tape is orientated substantially parallel  
2 to a length of the substrate.
- 1 21. (original) The method of claim 19 wherein the spacer tape includes one or more passages  
2 running substantially along a width of the spacer tape.
- 1 22. (currently amended) The method of claim 1 A method for treating a substrate surface,  
2 comprising the steps of:  
3 coiling one or more substrates into one or more coils in such a way that adjacent turns of the  
4 coils do not touch one another;

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- 5       placing the one or more coiled substrates in a treatment chamber; and  
6       in the treatment chamber, treating substantially an entire surface of the one or more coiled  
7       substrates with a surface treatment process,  
8       wherein coiling one or more substrates includes attaching two substrates together back-to-  
9       back to form a dual substrate and coiling the dual substrate.
- 1       23. (original) The method of claim 22, further comprising separating the two substrates after they  
2       have been treated in the treatment chamber.
- 1       24. (withdrawn) A substrate surface treatment system, comprising:  
2       a surface treatment chamber;  
3       a carousel adapted to receive a flexible substrate material as a coil, the carousel being sized  
4       to be received within the chamber with the substrate material coiled around the carousel in  
5       one or more turns;  
6       a winding mechanism configured to coil the substrate material about the carousel to form a  
7       coiled substrate; and  
8       one or more spacers, the spacers being configured to space apart adjacent turns of the coiled  
9       substrate in such a way that the adjacent turns of the coiled substrate do not touch one  
10      another; and  
11      a mechanism adapted to place one or more of the spacers between adjacent layers of the  
12      coiled substrate before the winding mechanism winds a full turn of the substrate material  
13      about the carousel.
- 1       25. (withdrawn, currently amended) The system of claim [[22]] 24, further comprising one or  
2       more sources of reactant gas coupled to the chamber, the reactant gas being of a type suitable  
3       for performing atomic layer deposition.
- 1       26. (withdrawn, currently amended) The system of claim [[22]] 24, wherein the chamber is an  
2       anodization chamber.
- 1       27. (withdrawn, currently amended) The system of claim [[22]] 24, wherein the carousel is in the  
2       shape of a polygonal cylinder.
- 1       28. (withdrawn, currently amended) The system of claim [[25]] 27 wherein the carousel is in the  
2       shape of a hexagonal cylinder.

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- 1 29. (withdrawn, currently amended) The system of claim [[22]] 24 wherein the spacers can be  
2 secured in place with respect to the carousel.
- 1 30. (withdrawn, currently amended) The system of claim [[22]] 24 wherein the spacers can stack  
2 on top of one another.
- 1 31. (withdrawn, currently amended) The system of claim [[22]] 24, wherein the spacers include  
2 one or more spacer tapes.
- 1 32. (withdrawn, currently amended) The system of claim [[29]] 31 wherein the spacer tapes run  
2 substantially parallel to a length of the substrate.
- 1 33. (withdrawn, currently amended) The system of claim [[29]] 31 wherein at least one spacer  
2 tapes is located proximate a side of the substrate.
- 1 34. (new) An apparatus for treating a substrate surface, comprising:  
2 means for coiling one or more substrates into one or more coils in such a way that adjacent  
3 turns of the coils do not touch one another;  
4 treatment chamber means; and  
5 means for treating in the treatment chamber substantially an entire surface of the one or more  
6 coiled substrates with a surface treatment process;  
7 wherein the surface treatment process includes one or more atomic layer deposition (ALD)  
8 reactions.